REMARKS

Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the foregoing amendments and the following remarks.

Claims 1-43 are pending in the subject application.

Claims 1-43 stand rejected under 35 U.S.C. §102 and/ or 35 U.S.C. §103.

35 U.S.C. §102 REJECTIONS

The Examiner rejected claims 33 and 43 under 35 U.S.C. §102(b) as being anticipated by Osamu [JP 2585463]. Applicants respectfully traverse as discussed below.

CLAIM 43

Applicants claim, claim 43, a driving method of a display device which outputs display scanning signals respectively to scanning signal lines, and outputs display data signals respectively to data signal lines, so as to display an image which is in accordance with the display data with respect to pixels which are disposed in a matrix. Such a display device also has a partial display function for a non-image area and an image display area. In addition, the horizontal signal lines in a vertical period of the display device are greater in number than the scanning signal lines. The method includes simultaneously outputting the display scanning signals and the display data signals according to the non-image area with respect to the respective scanning signal lines and the respective data signal lines that correspond to the non-image area.

It appears from the grounds of the rejection that the Examiner compares or equating the number of horizontal lines in a vertical period with the number of data lines (X_1-X_n = 640). The vertical lines in a vertical period as set forth in claim 43, however, are the scanning lines for the input video signal, and are NOT data lines.

Also, and as described in the subject application (e.g., see pages 4-5), Osamu teaches simultaneously scanning a plurality of scanning lines, other than the scanning lines of the effective display portion, in a retrace period within one frame period, when the number of scanning lines in the display area is greater than that of the effective scanning lines of the input video signal (when the number of horizontal lines in a vertical period is smaller than the number of scanning lines of the display device). That is, the purpose of Osamu is to realize display without varying the vertical period (without changing the time axis) when the number of horizontal lines in a vertical period is smaller than the number of scanning lines of the display device. The Abstract in Osamu also indicates that when selection of the last scanning electrode (e.g., the 400^{th} electrode) associated with the display information is completed, a set signal ST is transferred by means of a subsequent shift clock CK to produce a gate pulse (GP) for each of the remaining electrodes (401^{st} – 480^{th}).

As also indicated in the subject application, Osamu does not take into consideration the situation where the number of horizontal lines in a horizontal period of a given video signal is greater than the number of scanning lines in the display device. It is clear from this that Osamu is about simultaneously scanning a plurality of scanning lines, other than the scanning lines of the effective display portion, in a retrace period. As such, it cannot be said that Osamu discloses as

is claimed by Applicants a driving method of a display device in which the horizontal signal lines in a vertical period of the display device are greater in number than the scanning signal lines.

It also is clear that Osamu is totally silent as to circuit structure or configuration that allows operation with low power consumption to be realized.

To further Applicants' remarks, enclosed herewith is a partial translation of Osamu, more specifically the embodiments portion of the cited reference. Applicants respectfully submit that a further inspection of the partial translation of this reference makes clear that Osamu does not disclose the driving method as set forth in claim 43.

It is respectfully submitted that claim 26 is not anticipated by the cited reference for the foregoing reasons.

CLAIM 33

In view of the Examiner's remarks about claim 33 differing from claim 43, Applicants respectfully submit that at least for the foregoing reasons set forth regarding claim 43, claim 33 also is distinguishable from Osamu.

Applicant also would note that the image display device of claim 33 includes *inter alia*, scanning signal line control means for controlling the scanning signal line driving section so that the display scanning signals are simultaneously outputted with respect to the respective scanning signal lines which correspond to the non-image area as set by the set section and that the scanning signal line driving section includes a plurality of serially connected shift register sections for outputting the display scanning signals respectively to the scanning signal lines. It is

further indicated in claim 33, that the scanning signal line control means individually and simultaneously scanning the shift register sections in the non-image area.

It is respectfully submitted that Osamu nowhere describes, as is claimed by Applicants that the scanning signal control means individually and simultaneously scan the shift register sections in the non-image area. See also Fig. 3 and pages 36-37 of the subject application.

In the present invention, and with reference to Fig. 6 of the subject application for example, a GSP signal is inputted to each of the serially connected shift registers. Scanning of each scanning signal line is started as signaled by the GSP signal. Thus, with the present invention, a plurality of scanning start positions can be set in a vertical direction (e.g., such as claimed in claim 28). By thus setting a plurality of scanning start positions in a vertical direction, a shift register that corresponds to a display start portion of the image display area can be used as a shift register from which scanning is started. As a result, when upper and lower non-image portions are provided in a vertical direction, such as that shown in Fig. 5, writing can be made at the same timing in the upper and lower non-image portions. Consequently, with the present invention, the serially connected shift registers can be scanned separately and simultaneously (e.g., see claim 33).

In contrast, in Osamu writing needs to be made at different timings in the upper and lower non-image portions. In Osamu, the same ST signal controls Dij (203), as shown in Fig. 4 thereof. Consequently, Osamu cannot scan shift registers separately and simultaneously.

It is respectfully submitted that claim 33 is not anticipated by the cited reference for the foregoing reasons.

The following additional remarks shall apply to each of the above.

As provided in MPEP-2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Or stated another way, "The identical invention must be shown in as complete detail as is contained in the ... claims. *Richardson v Suziki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d. 1913, 1920 (Fed. Cir. 1989). Although identify of terminology is not required, the elements must be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). It is clear from the foregoing remarks that the above identified claims are not anticipated by Osamu.

It is respectfully submitted that for the foregoing reasons, claims 33 and 43 are patentable over the cited reference and thus satisfy the requirements of 35 U.S.C. §102(b). As such, these claims, including the claims dependent therefrom are allowable.

35 U.S.C. §103 REJECTIONS

The Examiner rejected claims 1-32 and 34-42 under 35 U.S.C. §103 as being unpatentable over the cited prior art for the reasons provided on pages 3-7 of the above-referenced Office Action. The following addresses the specific rejections provided in the above-referenced Office Action.

CLAIMS 24-26 & 42

Claims 24-26 and 42 stand rejected under 35 U.S.C. §103 as being unpatentable over Osamu [JP 2585463] in view of Taku [JP 11-184434] for the reasons provided on pages 3-5 of the above-referenced Office Action. The above-referenced Office Action asserts that Osamu discloses the methodology substantially as claimed except that Osamu does not disclose a step of deactivating operation of the scanning signal driving section until the next display is carried out. The Office Action further asserts that the teachings of Taku reads on this step of the method of the present invention. Applicants respectfully traverse.

Applicants claim, claim 26, a driving method of a display device which outputs display scanning signals respectively to scanning signal lines, and outputs display data signals respectively to data signal lines, so as to display an image which is in accordance with the display data with respect to pixels which are disposed in a matrix, and has a partial display function for a non-image area and an image display area. Such a driving method includes distinguishing a predetermined display portion and a predetermined non-display portion from each other, simultaneously outputting the display scanning signals and the display data signals according to the non-image area with respect to the respective scanning signal lines and the respective data signal lines which correspond to the non-image area; and deactivating operation of the scanning signal line driving section until next display is carried out.

It is clear from the subject application that the step of deactivating operation of the scanning signal line driving section until next display is carried out is not intended to be descriptive or mean that the signal line driving section only stops sending or transmitting signals.

Rather it is clear from the subject application that the deactivating operation is intended to mean or describe a condition whereby the scanning signal line driving section reduces its power consumption by terminating operation of functional components that make up the scanning signal line driving section (e.g., see page 33, 2nd paragraph of the subject application).

The description referred to in Taku as describing the step of deactivation operation merely indicates that after applying a white signal voltage (OFF voltage) before making a transition to a particular state; certain actions are taken to stop application of the CLY and the output of the select voltage from the Y driver. This is not a description of a deactivation of operation of the driver but essentially describes switching the driver so it is not performing an output function. As indicated in the subject application, in conventional practice the circuit remains activated even though a signal is not being outputted. This standby condition consumes energy and thus it can hardly be said that Taku describes the deactivation of operation described and claimed by Applicants. Basically, Applicants describe a condition where logic elements or functionalities of the scanning signal line driving section are shutdown or turned off so as to reduce power consumption and to be incapable of providing output signals until the driving section is turned on when the next display is to be carried out.

As indicated herein, the Abstract of Osamu indicates that when selection of the last scanning electrode (e.g., the 400th electrode) associated with the display information is completed, a set signal ST is transferred by means of a subsequent shift clock CK to produce a gate pulse (GP) for each of the remaining electrodes (401st – 480th). It can hardly be said that this discloses or teaches distinguishing a predetermined display portion and a predetermined non-

display portion from each other in the manner meant by the subject application and the present invention.

It is respectfully submitted that the foregoing remarks distinguishing claim 24 from the identified combination of references as well as the foregoing remarks distinguishing claims 33 and 43 from Osamu also apply to distinguish the display driving circuit of claim 42 from the combination of Osamu and Taku.

It is respectfully submitted that claims 24-26 and 32 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 1-23, 27-32 & 34-42

Claims 1-23, 27-32 and 34-42 stand rejected under 35 U.S.C. §103 as being unpatentable over Saito et al. (USP 6,232,939; "Saito") in view of Osamu [JP 2585463] for the reasons on pages 5-7 of the above-referenced Office Action. Applicants respectfully traverse. The within rejection is addressed blow as to groups of claims.

CLAIMS 1-2, 7-10, 15-17, 22-23, 25-27, & 31-32

Applicants claim, claim 1, a display device driving circuit which includes a scanning signal line driving section for outputting display scanning signals respectively to scanning signal lines for displaying an image according to the display data with respect to pixels which are disposed in a matrix. Such a display device driving circuit includes control means for switching the output of the display scanning signals to the respective scanning signal lines from successive

output to simultaneous output based on a transition instruction signal that causes the transition from successive output to simultaneous output. The control means also controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines based on the transition instruction signal, so that the display scanning signals are outputted simultaneously with respect to all scanning signal lines until next successive output is started by an instruction signal for successively outputting the display scanning signals. As further taught in the subject application (e.g., see pages 22-23 thereof), the transition instruction signal is a mode signal that is used to make a transition from successive to simultaneous output with respect to the ON signals to the respective scanning signal lines and more specifically the output of the ON signals to the respective scanning signal electrodes in the non-display or non-image portions.

As indicated previously by Applicants, Saito discloses a liquid crystal display apparatus having horizontal and vertical scanning circuits and scanning an array of pixels. Saito also discloses a liquid crystal display apparatus that outputs and latches an input signal at the rise and fall of the clock signal VCLK1. In the liquid crystal display apparatus of Saito, the duty ratio of the clock signal VCLK1 is changed to vary the phase of the output GS2 of the shift register for a pixel on an odd-numbered line, and the phase of the output GS3 of the shift register for a pixel on an even-numbered line. Further, in an overlapping time period of the output GS2 and output GS3, by supplying signals with the identical phase from the vertical scanning control terminals CNT1 and CNT2, it becomes possible to simultaneously drive outputs G2 and G3 from the vertical outputting circuit 32 (e.g., see col. 6, line 62 – col. 7, line 16, and col. 13 line 37 – col.

14, line 68 thereof). Thus, while the liquid crystal display apparatus of Saito may be able to simultaneously drive *adjacent* scanning lines (for example, scanning lines 2n-1 and 2n), neither of these adjacent scanning lines can be simultaneously driven with other scanning lines. For example, the scanning line 2n-1 cannot be driven simultaneously with the scanning line 2n+ 1. Thus, the liquid crystal display apparatus of Saito cannot simultaneously scan the entire non-image area with a single horizontal line or two horizontal scanning lines. Further, Saito does not teach causing a transition from a successive output to simultaneous output with respect to the output of the display scanning signals to the respective scanning signal lines based on a transition instruction signal. In addition, Saito does not even consider setting areas for simultaneous output and successive output.

Although the Office Action concedes that Saito does not teach switching from successive to simultaneous output, the Office Action asserts that Osamu further teaches switching from successive to simultaneous output. As indicated herein, Osamu does not disclose switching based on a transition instruction signal or mode signal but rather that when selection of the last scanning electrode (e.g., the 400^{th} electrode) associated with the display information is completed, a set signal ST is transferred by means of a subsequent shift clock CK to produce a gate pulse (GP) for each of the remaining electrodes ($401^{st} - 480^{th}$). Such a set signal transferred by means of a subsequent clock to produce a gate pulse hardly corresponds to a mode transition signal of the present invention.

It is respectfully submitted that the foregoing remarks distinguishing claim 1 from the identified combination of references also apply to distinguish each of claims 2, 7-10, 15-17, 22-23, 25-27 and 31-32 from the identified combination of references.

It is respectfully submitted that claims 1-2, 7-10, 15-17, 22-23, 25-27 and 31-32 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 3, 6, 11, 14, 18, 29 & 35-36

Claim 3, which depends from claim 1, includes the further limitation that the display device includes deactivating means for deactivating an operation of the scanning signal line driving section based on a synchronize signal and the transition instruction signal for displaying the image.

As admitted by the Examiner in the above-referenced Office Action, Osamu does not disclose nor teach a method whereby operation of the scanning signal line driving section is deactivated. As also indicated herein, it is clear from the subject application that the deactivation operation of the scanning signal line driving section is not intended to be descriptive or mean that the signal line driving section is just stopped from sending or transmitting signals. Rather it is clear from the subject application that the deactivating operation is intended to also mean or describe a condition whereby the scanning signal line driving section reduces its power consumption by terminating operation of functional or logic components that make up the scanning signal line driving section that would otherwise be consuming power even in a standby condition (e.g., see page 33, 2nd paragraph of the subject application).

The Examiner also has noted that claim 3 stands rejected because of the rejection as to the independent claims. As such, Applicants respectfully submit that Saito and Osamu, alone or in combination do not disclose, teach or suggest a display device driving circuit that includes the deactivating means of claim 3. The references, alone or in combination also do not provide any teaching, suggestion nor offer any motivation for modifying the circuitry described in Saito so as to yield the display device driving circuit of claim 3.

Applicants also would note that Saito discloses suspending the output of a select voltage from the Y-driver by suspending CLY in an active-matrix display panel, so that power consumption can be reduced. It should be recognized, however, that the voltage does need to be applied within a certain period in order to maintain the particular display (e.g., white display).

This description in Saito merely indicates that after applying a white signal voltage (OFF voltage) before making a transition to a particular state; certain actions are taken to stop application of the CLY and the output of the select voltage from the Y driver. This is not a description of a deactivation of operation of the driver but essentially describes switching the driver so it is not performing an output function. As indicated in the subject application, in conventional practice the circuit remains activated even though a signal is not being outputted. This standby condition consumes energy and thus it can hardly be said that Saito describes the deactivation of operation described and claimed by Applicants. Basically, Applicants describe a condition where logic elements or functionalities of the scanning signal line driving section are shutdown or turned off so as to be reduce power consumption and be incapable of providing output signals until the driving section is turned when the next display is to be carried out.

It is respectfully submitted that the foregoing remarks distinguishing claim 3 from the identified combination of references also apply to distinguish each of claims 6, 11, 14, 18, 29 and 35-36 from the identified combination of references.

It is respectfully submitted that claims 3, 6, 11, 14, 18, 29 and 35-36 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 4, 12

Claim 4, which depends from claim 1, includes the further limitation that the control means includes an unscanned area recognizing section for recognizing an unscanned area based on the transition instruction signal, and controls the output of the display scanning signals from the scanning signal line driving section to the respective scanning signal lines so that the display scanning signals are outputted only to those scanning signal lines which correspond to the unscanned area as recognized by the unscanned area recognizing section.

As indicated in the discussion above regarding claims 24-26, Osamu indicates that when selection of the last scanning electrode (e.g., the 400^{th} electrode) associated with the display information is completed, a set signal ST is transferred by means of a subsequent shift clock CK to produce a gate pulse (GP) for each of the remaining electrodes ($401^{st} - 480^{th}$). As also indicated herein, the teachings and disclosure in Osamu do not disclose the mode transition signal or transition instruction signal of the present invention. Thus, it can hardly be said that Osamu discloses or teaches providing an unscanned area recognizing section for recognizing an

unscanned area based on a transition instruction signal as is claimed by Applicants (see also Fig. 3 and pages 24-25 of the subject application).

The Examiner also has noted that claim 4 stands rejected because of the rejection as to the independent claims and thus, there are no further specific grounds of rejection as to claim 4. As such, Applicants respectfully submit that Saito and Osamu, alone or in combination do not disclose, teach or suggest the display device driving circuit as set forth in claim 4. The references, alone or in combination also do not provide any teaching, suggestion nor offer any motivation for modifying the circuitry described in Saito so as to yield the display device driving circuit of claim 4.

It is respectfully submitted that the foregoing remarks distinguishing claim 4 from the identified combination of references also apply to distinguish claim 12 from the identified combination of references.

It is respectfully submitted that claims 4 and 12 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 5-6, 13, 19, & 28

Claim 5, which depends from claim 2, includes the further limitation that the scanning signal line driving section has a plurality of scanning starting positions which are set in a vertical direction. The scanning signal line driving section also successively outputs, among the plurality of scanning starting positions, the display scanning signals to scanning signal lines which correspond to a non-image area, which is an area from a scanning starting position therein in the

vicinity of a front portion of an image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputs the display scanning signals to scanning signal lines which correspond to an unscanned area based on the transition instruction signal. See also Fig. 3 and pages 36-37 of the subject application.

As indicated herein, Osamu merely indicates that when selection of the last scanning electrode (e.g., the 400^{th} electrode) associated with the display information is completed, a set signal ST is transferred by means of a subsequent shift clock CK to produce a gate pulse (GP) for each of the remaining electrodes ($401^{st} - 480^{th}$). In other words, Osamu only discloses a circuit arrangement where there is one area for image display and another area that following the image display for the non-image display. Thus, Osamu does not anywhere describe a scanning signal line driving section that also successively outputs, among the plurality of scanning starting positions, the display scanning signals to scanning signal lines which correspond to a non-image area, which is an area from a scanning starting position therein in the vicinity of a front portion of an image display area to the image display area, and to scanning signal lines which correspond to the image display area, and thereafter simultaneously outputs the display scanning signals to scanning signal lines which correspond to an unscanned area based on the transition instruction signal. This is not surprising, as Osamu is directed to a device and circuit having different functional capabilities.

The Examiner also has noted that claim 5 stands rejected because of the rejection as to the independent claim and thus there are no further specific grounds of rejection as to claim 5. As

such, Applicants respectfully submit that Saito and Osamu, alone or in combination do not disclose, teach or suggest the display device driving circuit as set forth in claim 5. The references, alone or in combination also do not provide any teaching, suggestion nor offer any motivation for modifying the circuitry described in Saito so as to yield the display device driving circuit of claim 5.

It is respectfully submitted that the foregoing remarks distinguishing claim 5 from the identified combination of references also apply to distinguish claims 6, 13, 19 and 28 from the identified combination of references.

It is respectfully submitted that claims 5-6, 13, 19 and 28 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 20, 30, & 40-41

Claim 20, which depends from claim 17, includes the further limitation that the display scanning signals are simultaneously outputted based on the transition instruction signal to each of a first line group and a second line group of the scanning signal lines which correspond to an unscanned area.

Saito and Osamu nowhere describe, teach or suggest that the scanning signal lines that correspond to an unscanned area can be broken into first and second line groups such as that described on pages 26-27 of the subject application. Given the manner in which the circuitry described in Osamu and Saito are intended to operate, it can hardly be said that one skilled in the

art would have been taught to simultaneously output the display scanning signals to each of a first line group and a second line group.

The Examiner also has noted that claim 20 stands rejected because of the rejection as to the independent claim and thus there are no further specific grounds of rejection as to claim 20. As such, Applicants respectfully submit that Saito and Osamu, alone or in combination do not disclose, teach or suggest the display device driving circuit as set forth in claim 20. The references, alone or in combination also do not provide any teaching, suggestion nor offer any motivation for modifying the methodology described in Saito so as to yield the methodology of claim 20.

It is respectfully submitted that the foregoing remarks distinguishing claim 20 from the identified combination of references also apply to distinguish claims 30 and 40-41 from the identified combination of references.

It is respectfully submitted that claims 20, 30 and 40-41 are patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 21 & 37

Claim 21, which depends from claim 17, includes the further limitation that the frequencies of the display scanning signals are different between successive output and simultaneous output of the display scanning signals with respect to the scanning signal lines.

As described in the subject application, the display scanning signals of the image area that are subject to the successive output process and the display scanning signals of the non-image

area that are subject to the simultaneous output process can have different frequencies. As further described in the subject application, by having different frequency or application periods, (refresh rates) power consumption can be reduced and display operation can be stabilized (e.g., see pages 33-35 of the subject application). This is not described, taught or suggested anywhere in either Saito or Osamu not is the beneficial effects described, taught or suggested therein. This is not surprising as indicated herein, Osamu is silent as reducing power consumption.

The Examiner also has noted that claim 21 stands rejected because of the rejection as to the independent claim and thus there are no further specific grounds of rejection as to claim 21. As such, Applicants respectfully submit that Saito and Osamu, alone or in combination do not disclose, teach or suggest the display device driving circuit as set forth in claim 21. The references, alone or in combination also do not provide any teaching, suggestion nor offer any motivation for modifying the methodology described in Saito so as to yield the methodology of claim 21.

It is respectfully submitted that the foregoing remarks distinguishing claim 21 from the identified combination of references also apply to distinguish claim 37 from the identified combination of references.

It is respectfully submitted that claims 21 and 37 are patentable over the cited reference(s) for the foregoing reasons.

The following additional remarks shall apply to each of the above.

As provided in MPEP 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, the references cited, alone or in combination, include no such teaching, suggestion or motivation.

Furthermore, and as provided in MPEP 2143.02, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 19866). Additionally, it also has been held that if the proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited references, there is no reasonable expectation of success provided in the reference(s).

It is respectfully submitted that for the foregoing reasons, claims 1-32 and 34-42 are patentable over the cited reference(s) and thus, satisfy the requirements of 35 U.S.C. §103. As such, these claims are allowable.

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

Applicants believe that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,
Edwards & Angell, LLP

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By: _____

William J. Daley, Jr.
(Reg. No. 35,487)
P.O. Box 9169
Boston, MA 02209
(617) 439- 4444